



Patent
Attorney's Docket No. 001425-104

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of) **MAIL STOP AF**
Masahiko Tanaka et al.)
Application No.: 09/862,458) Group Art Unit: 1763
Filed: May 23, 2001) Examiner: KARLA A. MOORE
For: THIN-FILM DISPOSITION) Confirmation No.: 7476
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PRE-APPEAL CONFERENCE REQUEST

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

A Pre-Appeal Conference is requested to review the above-identified application. No amendments are being filed with this request. For at least the following reasons, it is believed that the outstanding rejections are clearly improper and without basis.

Overview

The Examiner relies on *Yuda* for a disclosure of features defined by Claims 1, 9, 15 and 21 except, as described in paragraph three of the Official Action dated March 21, 2005, that "the dividing plate is made of a plurality of plates connected together by securely bonding them over substantially the entire area of their interfacial surfaces" and that "the dividing plate is arranged in the vacuum reaction chamber such that the only communication between the plasma discharge space and the film deposition process space is through the plurality of holes."

The Examiner relies on *Umotoy* for a disclosure of "using a plurality of plates as a way to maintain gasses in separate passages of a distribution plate until they exit the distribution plate into the process region" and "fusing together a plurality of laminated plates at their contacting surfaces for the purpose of avoiding the use of o-

rings while maintaining separation of gases as gases transition from the upper plate to the lower plate".

The Examiner relies upon *Beisswenger* for a disclosure of a "dividing plate [that] is arranged in the vacuum reaction chamber such that the only communication between the plasma discharge space and the film deposition process space is through the plurality of holes."

Argument

1. There is no motivation to modify *Yuda* in view of *Umotoy* as suggested

The Examiner proposes that one would have modified *Yuda*'s middle mesh plate electrode 11 in view of *Umotoy*'s shower head 114 to arrive at the claimed device.

As noted on page three of the Response dated June 21, 2005, *Yuda* generates plasma in an upper chamber and delivers radicals through a middle mesh plate electrode 11 to a lower processing zone where a silica oxide film is formed. The mesh plate electrode 11 acts in concert with the RF Impression Electrode Containing Gas Shower Head 1 to produce plasma. That is, the mesh plate electrode 11 and the RF Impression Electrode Containing Gas Shower Head 1 act together to conduct electric current and produce plasma.

In contrast, *Umotoy* discloses a showerhead 114 that delivers two different reagents, e.g. titanium tetrachloride and ammonia, to a process region 104. The showerhead 114 in *Umotoy* is not an electrode and does not operate to create plasma.

Therefore, a skilled person would not have looked toward *Umotoy* (not relating to plasma) for direction for modifying *Yuda*'s middle mesh plate electrode 11 for generation of plasma and delivery of radicals. There is no indication in either *Yuda* or *Umotoy* that the features of the shower head 114 in *Umotoy* would be applicable to *Yuda*'s device. There is no disclosure in *Umotoy* that the shower head 114 is capable of acting, or designed to act, as an electrode. Nor is there a disclosure that the mesh plate electrode 11 will operate as intended if reconfigured into a plurality of laminated plates as shown in *Umotoy*.

For at least those reasons, it would not have been obvious to a skilled person to modify the middle mesh plate electrode 11 in *Yuda* to include the suggested features of the shower head 114 as shown in *Umotoy*, at least because one would expect disruption of the intended operation of *Yuda*.

2. *Yuda* and *Umotoy* disclose showerheads at the top of a space

The Examiner proposes that a skilled person would have modified *Yuda*'s middle mesh plate electrode in view of *Umotoy*'s shower head 114.

However, *Yuda* discloses a shower head 1 positioned above the plate electrode 11, and a space therebetween. Therefore, in view of *Umotoy*'s shower head 114, one would only be directed to modify *Yuda*'s shower head 1, not the meddle mesh plate electrode 11 as suggested in the Official Action.

3. A skilled person would not have modified either *Umotoy* or *Yuda* in view of *Beisswenger*

Beisswenger discloses a stationary metal plate 46 through which pipes 39-45 are glued. Plasma is generated in a space 57 located below the metal plate 46. A gas inlet port 47 is disposed above the metal plate 46 and introduces a reactive gas. The reactive gas travels through openings 48-54 between the external walls of the feed pipes 39-45 into the space between the metal plate 46 and a substrate 23 or electrode 22.

A skilled person in the art would not have looked toward *Beisswenger* for direction in modifying either *Yuda* or *Umotoy* at least because *Beisswenger* operates differently than either *Yuda* or *Umotoy*. For example, *Beisswenger* only inputs a single reactive gas and does not pass radicals through a dividing plate into a treatment space. Also, *Beisswenger* shows a single space 57 where plasma is generated and substrates are treated. The plasma is discharged from the space 57 through the pipes 39-45. Therefore, a skilled person would not have modified either *Yuda* or *Umotoy* in view of *Beisswenger*.

4. Beisswenger does not disclose a dividing plate

The Examiner acknowledges that *Yuda* and *Umotoy* fail to disclose a "dividing plate [that] is arranged in the vacuum reaction chamber such that the only communication between the plasma discharge space and the film deposition process space is through the plurality of holes," and relies on *Beisswenger* to remedy such deficiency. The Examiner states that *Beisswenger* discloses "a dividing plate and accompanying seals (Figure 1, 65 and 66) to seal t[h]e dividing plat[e] and adjacent spaces within a vacuum chamber f[o]r the purpose of preventing gases from escaping upwards." See paragraph 9 of the Official Action of March 21, 2005. However, *Beisswenger*'s seals 65, 66 are provided between the opposing electrode and the lateral supports to ensure that the gas enters the space 57. Also, *Beisswenger* discloses that active gas is delivered to the space 57 where plasma is formed and the substrate is treated.

Therefore, *Beisswenger* does not even disclose a separate plasma discharge space and a film deposition process space, and thus cannot disclose what would be considered to be a corresponding dividing plate as claimed.

For at least those reasons, *Beisswenger* does not disclose that for which it is relied upon, i.e., a dividing plate, and the Examiner has therefore failed to establish a *prima facie* case of obviousness.

5. The Examiner is employing impermissible hindsight review

At least based on the arguments presented in parts 1, 2, 3, and 4 there is no motivation present in the cited documents that would have directed one to combine *Yuda* and *Umotoy* as suggested by the Examiner. Therefore, the only way one could have arrived, *arguendo*, at the presently claimed subject matter based on the cited documents is through the use of impermissible hindsight review. Clearly the Examiner has done so in this case, and for at least that reason too the rejections should not be allowed to stand.

Conclusion

For at least the reasons stated above, the Examiner has not established a *prima facie* case of obviousness or set forth proper rejections. Therefore, the outstanding rejections cannot be allowed to stand.

Respectfully submitted,

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